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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,959	03/12/2001	Hiromichi Nakata	10517/88	4861

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EXAMINER	
DOVE, TRACY MAE	
ART UNIT	PAPER NUMBER
1745	7

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/802,959	NAKATA ET AL.
	Examiner	Art Unit
	Tracy Dove	1745

#7

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,10-15,17-21 and 23-31* is/are rejected.

7)☒ Claim(s) *6-9,16 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

Receipt is acknowledged of papers filed on 7/2/01 under 35 U.S.C. 119 (a)-(d) based on an application filed in Japan on 3/2/01 (2001-058173). Applicant has not complied with the requirements of 37 CFR 1.63(c), since the oath, declaration or application data sheet does not acknowledge the filing of any foreign application. A new oath, declaration or application data sheet is required in the body of which the present application should be identified by application number and filing date.

Receipt is acknowledged of papers submitted on 3/12/01 under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file (Japanese documents 2000-068553 and 2000-169897).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 4, 5, 10, 12-15, 18-21, 24 and 26-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimura et al., US 6,291,094.

Yoshimura teaches a separator for a fuel cell, a fuel cell incorporating the separator and a method of producing the separator. The gas separator of Yoshimura comprises a metal base member coated with an electrically conductive material other than carbon (first coating layer) and with a carbon material (second coating layer) so that a sufficiently high corrosion resistance can be achieved without using a costly material such as a noble metal. The separator has a carbon material coating on a contact face that contacts an adjacent member (for example, a gas diffusion electrode) when the separator is incorporated into a fuel cell. Since the adjacent member is also formed of a carbon material, the contact resistance between the carbon material coating of the separator and the adjacent member can be reduced. Thus, the provision of the first coating layer of an electrically conductive material and the second coating layer secures a sufficiently high corrosion resistance and a sufficiently high electric conductivity. See col. 2, lines 15-34. The separators have ribs that define gas passages (col. 4, lines 9-23). Yoshimura teaches that a base metal separator material can be coated with tin (a base metal) and a thermal expansion graphite (carbon material) in order to secure a high corrosion resistance and reduce the production cost in comparison with a case where use of a noble metal (base metal), such as platinum rhodium or the like is used (col. 7, lines 32-55).

Regarding claims 4 and 5, Yoshimura teaches in the regions of the separators defining the gas passages (non-contact surface), the coating layer of the electrically conductive material and/or the coating layer of the carbon material may be omitted in those regions (col. 15, lines 50-65). Furthermore, since there is no need to secure an electric conductivity in the regions other

than the contact faces, it becomes unnecessary to remove the passive state film from those regions of the base material of the separator (col. 16, lines 20-35).

Regarding claim 10, the carbon coating layer may include a binder such as an acid resistant resin (col. 9, lines 9-19).

Regarding claims 12 and 13, the first coating layer may include graphite material (carbon material). If the graphite material is taken up into the first coating layer, the contact resistance between the first coating layer and the second coating layer may be decreased (col. 11, lines 3-9).

Thus the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 3, 11, 17, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura et al., US 6,291,094, as evidenced by Hawley's Condensed Chemical Dictionary, page 835.

Yoshimura is discussed above regarding the limitations of claim 1.

Yoshimura does not teach the thickness of the first coating layer or that the noble metal is silver or gold.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one of skill would find a first coating of gold or silver obvious in view of the first coating of a noble metal by Yoshimura. Specifically,

one of skill would have known that gold and silver are considered noble metals. This is evidenced by Hawley's Condensed Chemical Dictionary that teaches the noble metals are generally considered to be gold, silver, platinum, palladium, iridium, rhenium, mercury, ruthenium and osmium (page 835).

Regarding the thickness limitation of the instant claims, Yoshimura teaches and suggests the first coating layer does not need to be thick (col. 8, lines 25-28). One of skill would have known that as the thickness of the first coating layer increases the production cost increases (see col. 8, lines 25-28 of Yoshimura). Thus one of skill would be motivated to provide a thin layer in order to reduce production costs.

Allowable Subject Matter

Claims 6-9, 16 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the claims are directed toward a gas separator having a base metal material. The base metal has a first layer of noble metal coated thereon and the first noble metal layer has a second layer of carbon material coated thereon. The gas separator further includes an underlying metal coating layer formed between the first noble metal layer and the base metal.

The prior art does not teach a gas separator having a base metal with a first layer of noble metal coated thereon and the first noble metal layer having a second layer of carbon material coated thereon, wherein the gas separator further includes an underlying metal coating layer formed between the first noble metal layer and the base metal.

Yoshimura teaches and suggests a gas separator having a base metal with a first layer of noble metal coated thereon and the first noble metal layer having a second layer of carbon material coated thereon. However, Yoshimura does not teach the gas separator further includes an underlying metal coating layer formed between the first noble metal layer and the base metal.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hockaday 5,631,099 teaches fuel cell separators are typically mechanically robust, which leads to the need to use bulk metal separators with at least non-corrosive metal exteriors such as graphite, doped diamond, platinum or gold coatings (col. 3, lines 5-8).

Badwal et al. 6,280,868 teaches an electrical interconnect for fuel cell having an outer coating comprising a noble metal (see abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is Pat Ryan, who can be reached at (703) 308-2383. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax numbers are 703-872-9310 (after non-final) and 703-872-9311 (after final).

February 20, 2003

Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700